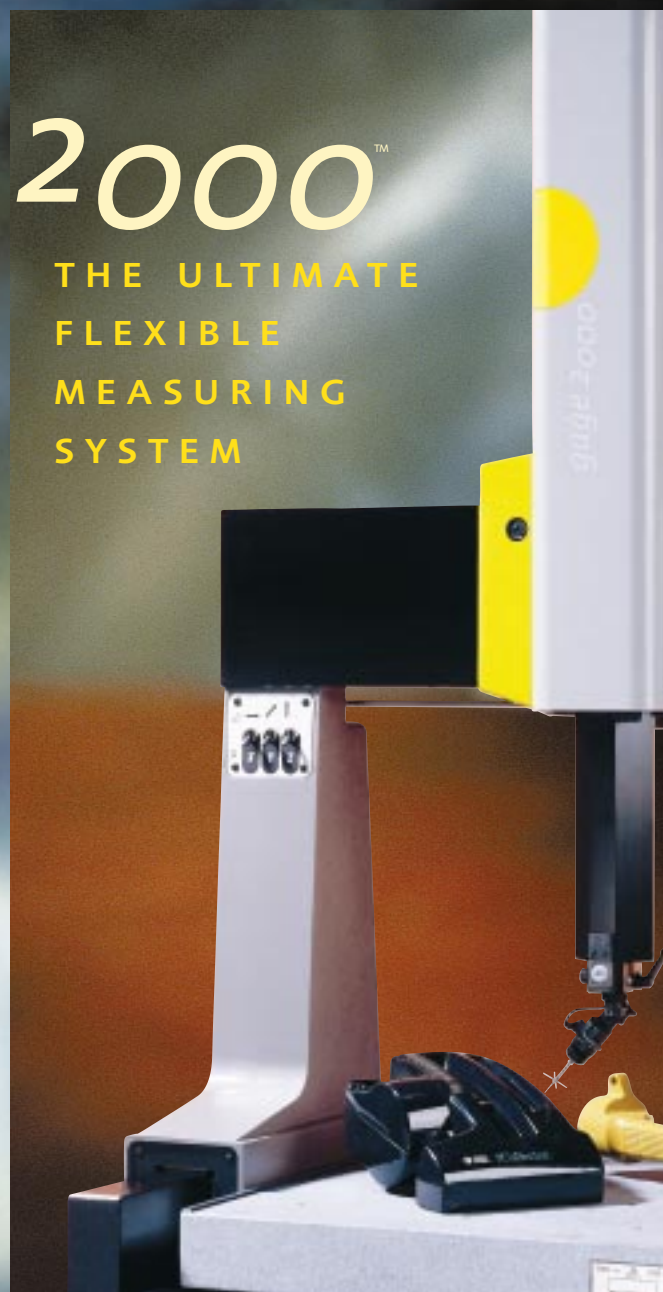


# *gage* 2000™

THE ULTIMATE  
FLEXIBLE  
MEASURING  
SYSTEM



 wood brown & sharpe™

*shaping the future of measurement*



**GAGE 2000 R  
WILL CHANGE  
THE WAY  
YOU MEASURE**

All-aluminum construction improves thermal, dimensional/torsional, and geometric stability.

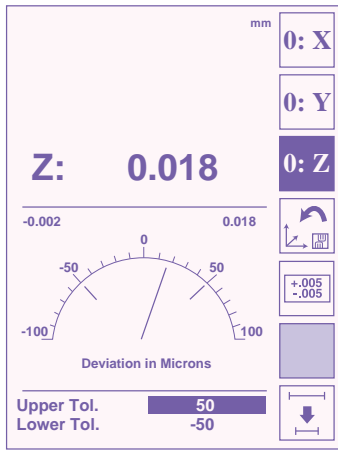
ZMouse® Control permits full system control from the Z-axis to speed set up and measurement routines.

Shop-hardened control unit features a PCMCIA "Smart Card" 32-bit RISC processor serial output/parallel port

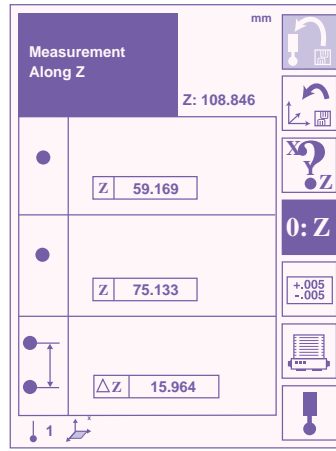
The specially-designed GAGE 2000 R control interface provides push-button access to sophisticated data display and analysis. Adjustable mounting allows ergonomic positioning for operator comfort.

Optional printer and heavy-duty stand give GAGE 2000 R added flexibility in any inspection application.

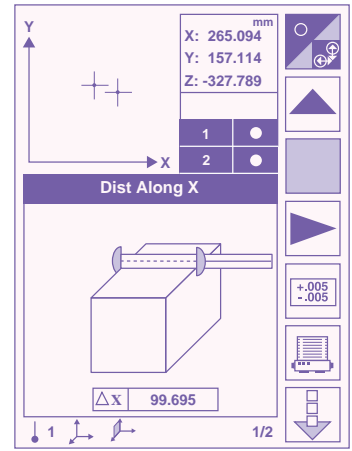
gage brown & sharpe



GAGE 2000 R is a Dial Indicator

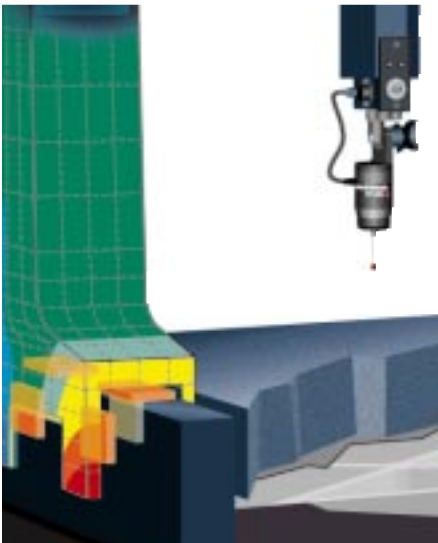


GAGE 2000 R is a Height Gauge



GAGE 2000 R is a Caliper

*Computer design techniques, including Finite Element Analysis (FEA) and Modal Analysis, reduce structural deflection and the effects of vibrations and thermal variations on machine performance.*

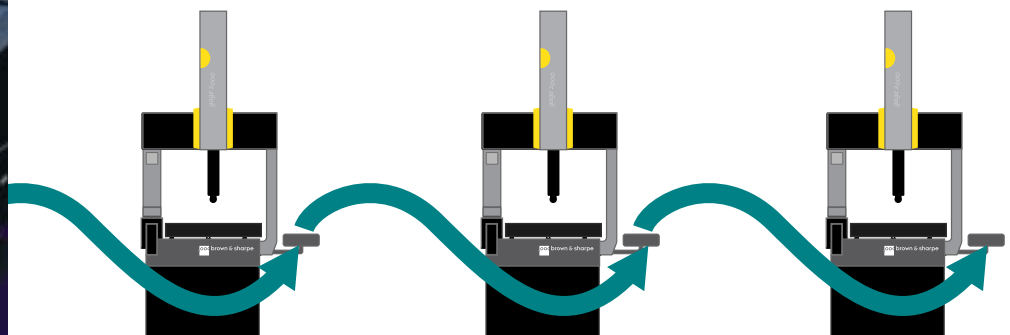


The GAGE 2000 R Series Measurement Station from Brown & Sharpe replaces conventional precision hand tools and gages in virtually all production measuring and inspection applications—and, provides automatic data collection and analysis. GAGE 2000 R is unique because you can use it as a caliper, height gauge, or dial indicator, and even a full-featured coordinate measuring machine with scanning capability. It can perform any measurement function you need, from a stand-alone, walk-up station for first piece inspection, layout inspection and tool set-up, to a flexible gage that can handle workpiece sizes up to 457 mm X 508 mm X 406 mm (18" X 20" X 16"). In addition, with its manual scanning capability, GAGE 2000 R performs reverse engineering applications.

## DIMENSIONAL MEASUREMENT HAS NEVER BEEN EASIER, OR FASTER

Measure the dimensions of a workpiece with the GAGE 2000 R, by simply selecting the measuring tool you need (caliper, height gauge, dial indicator, CMM, etc.), then just touch the probe to the part feature. There are no time-consuming setups. GAGE 2000 R software identifies and draws the part feature on the 1/4 VGA monitor, automatically compares its dimensions to nominal, and tells you if you're out of tolerance. An optional utility converts probe center points to standard CAD formats, such as DXF and IGES, for reverse engineering applications, or to accurately define and document the results of your manufacturing process. To speed repetitive measuring tasks, and transfer inspection programs from one GAGE 2000 R system to another, use the PCMCIA "Smart Card."

*The ability to transfer the PCMCIA card from the programming source to satellite GAGE 2000s adds system flexibility.*





## INDIVIDUALIZED SERVICE AND SUPPORT ASSURES OPTIMUM PERFORMANCE

Count on Brown & Sharpe's world class service and support for your GAGE 2000 Measurement Station. The Brown & Sharpe application engineer assigned to install your system will also conduct operator training sessions, and will serve as your service contact.

Choose the training level that best suits your needs, from introductory courses to in-depth study of GD&T and advanced part programming for experienced operators. This integrated, individualized approach to service and support assures that you always have access to someone who knows and understands your unique measurement and inspection requirements, right from the start.

## GAGE 2000 T EXPANDS YOUR ORGANIZATION'S COMMUNICATIONS CHANNELS

GAGE 2000T Series Measurement Stations combine powerful PC-based data handling with the WINDOWS™ operating environment to give you an analysis and control system that can handle a variety of sophisticated measurement and inspection applications. With TUTOR™ for WINDOWS™ software, the T Series is the perfect system for quality control/quality assurance operations where it's necessary to exchange information in a common format within the organization.

## GAGE 2000 P CONNECTS EFFORTLESSLY TO YOUR CAD SYSTEM FOR OFF-LINE PROGRAMMING

The GAGE 2000 P Series gives you an easy-to-use, direct link between your measuring machine and CAD data bases. P Series measurement stations are equipped with PC-DMIS™ for WINDOWS™ software that lets you use the original CAD data to create inspection programs. You can also digitize parts with the GAGE 2000 P Series and upload the dimensional data to your CAD system for reverse engineering applications. PC-DMIS for WINDOWS is a full-featured measurement and inspection software program that can help you handle your most difficult inspection jobs.

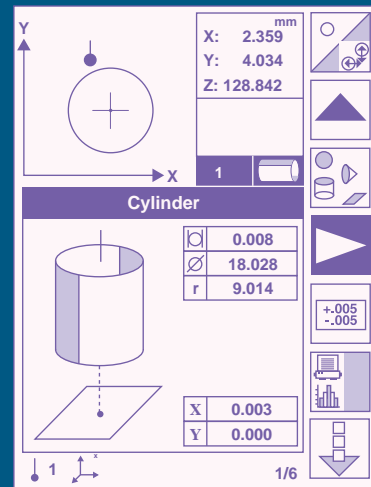
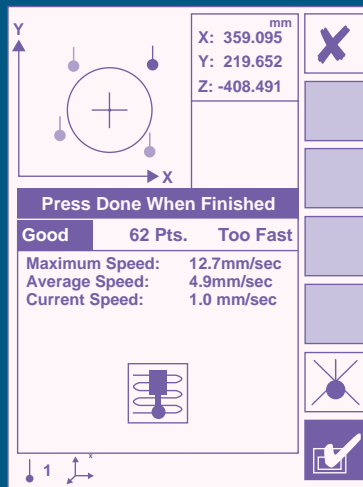
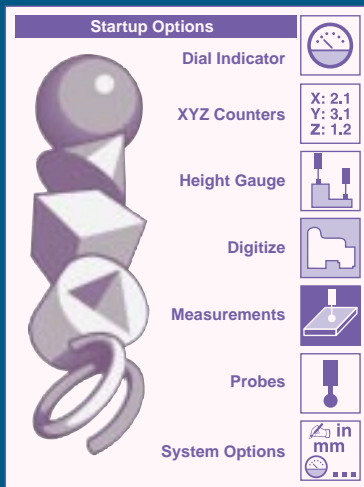
## THE BEST CHOICE FOR OFF-LINE PROGRAMMING

GAGE 2000T and P Series Measurement Stations are cost effective alternatives to dedicated off-line programming systems with 3D simulators.

With the T and P Series measurement stations you can construct the measurement program from CAD data, or the actual part, with no need for further editing.



# GAGING AS EASY AS...

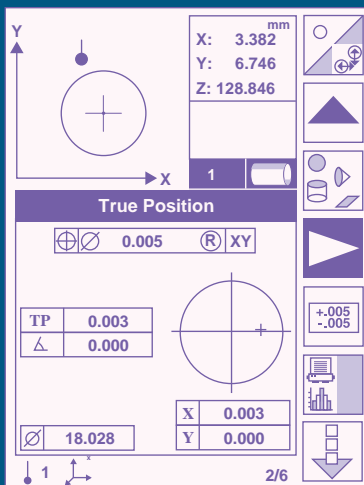


1. Just push "Measurements"

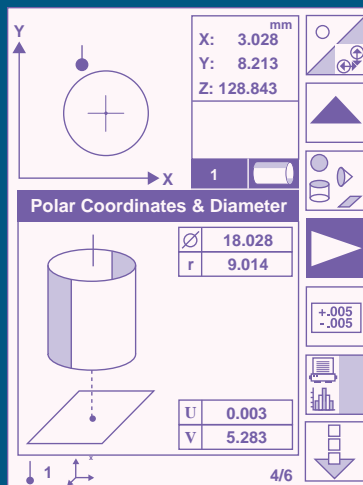
2. Scan a feature...  
GAGE 2000 R draws its picture and tells you if your probe technique is ok.

3. GAGE 2000 R automatically tells you what feature you touched... and displays its size and location.

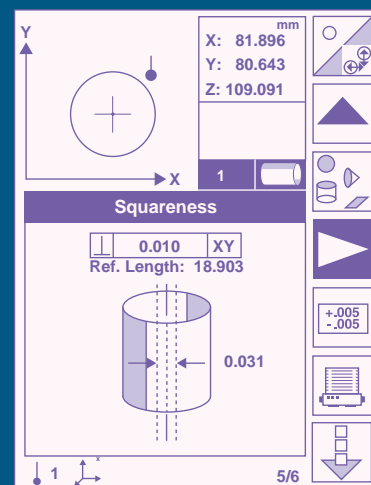
## ACCESS ALL DIMENSIONAL INFORMATION ABOUT THE FEATURE QUICKLY AND EASILY.



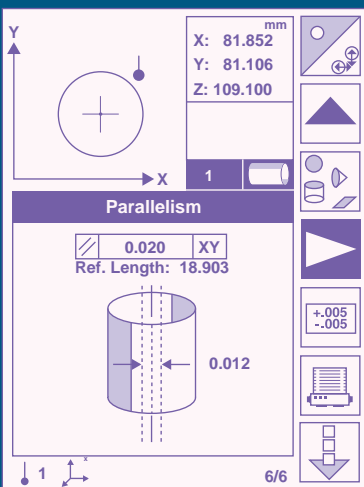
True Position



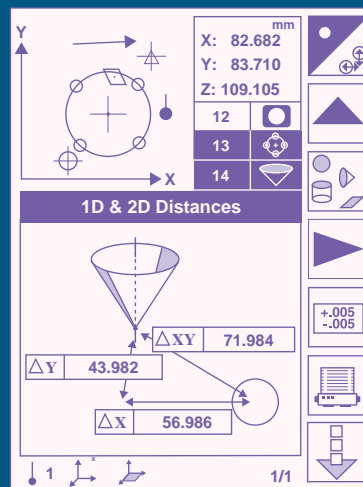
Polar Coordinates and Diameter



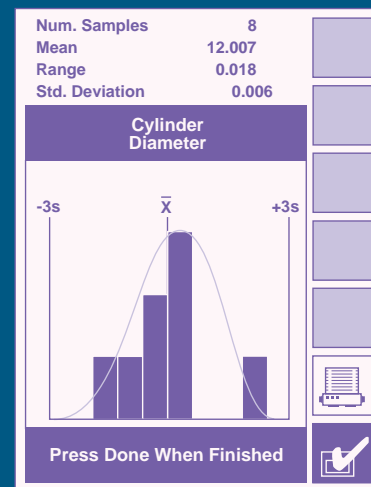
Squariness



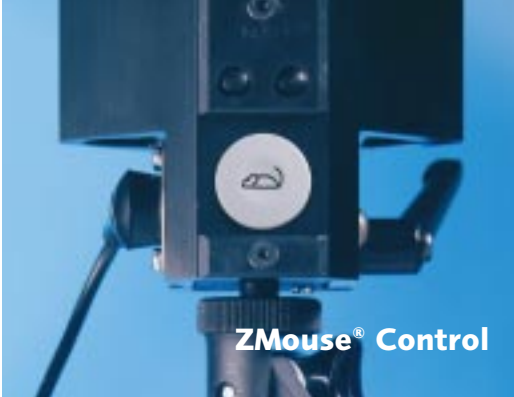
Parallelism



Feature relationship



Print a copy of the measurement results, or select the statistics package.



**ZMouse® Control**



**Z Axis Bearings**



**Z Counter Balance**



**XYZ Fine Adjust**



**Encoder & Scales**



**Optional Table**



**PC for P and T Series**



**Machine Leveling Screws**



**Pressure Regulator**



**Series R Operator Interface**



**XYZ Axis Locks**



**Optional R series Stand**



**Y Axis Bearings**



**X Axis Bearings**



**Optional Printer**

# GAGE 2000 R CAN SAVE YOU MONEY

The manual gaging package (listed below) costs \$15,890. One GAGE 2000 R Series Measurement Station replaced all of them for thousands less. You can reduce inspection time, too. A typical part with 4 bore diameters, a cylinder to wall perpendicularity, 8 length dimensions, and 3 true position callouts took Company A 16 minutes per piece using hand tools. At a labor rate of \$24 per hour, each piece cost \$6.40 to inspect, or, for 400 parts per month, \$2,560. Measuring the same part with the GAGE 2000 R took only six minutes per part at a cost of \$2.40 per piece, or \$960 per month for 400 parts. The savings are \$1,600 per month, \$19,200 per year.

## Typical Manual Gaging Package

4 Dial Indicators

Cadillac Reference Gage

Electronic Height Gage

18" X 24" Surface Plate

6" Digital Caliper

8" Digital Caliper

Gage Amp and LVDT Sensor

1" Micrometer

1-2" Micrometer

2-3" Micrometer

SPC Data Collector

Set of Pin Gages

Misc. Stands and Gage Holders

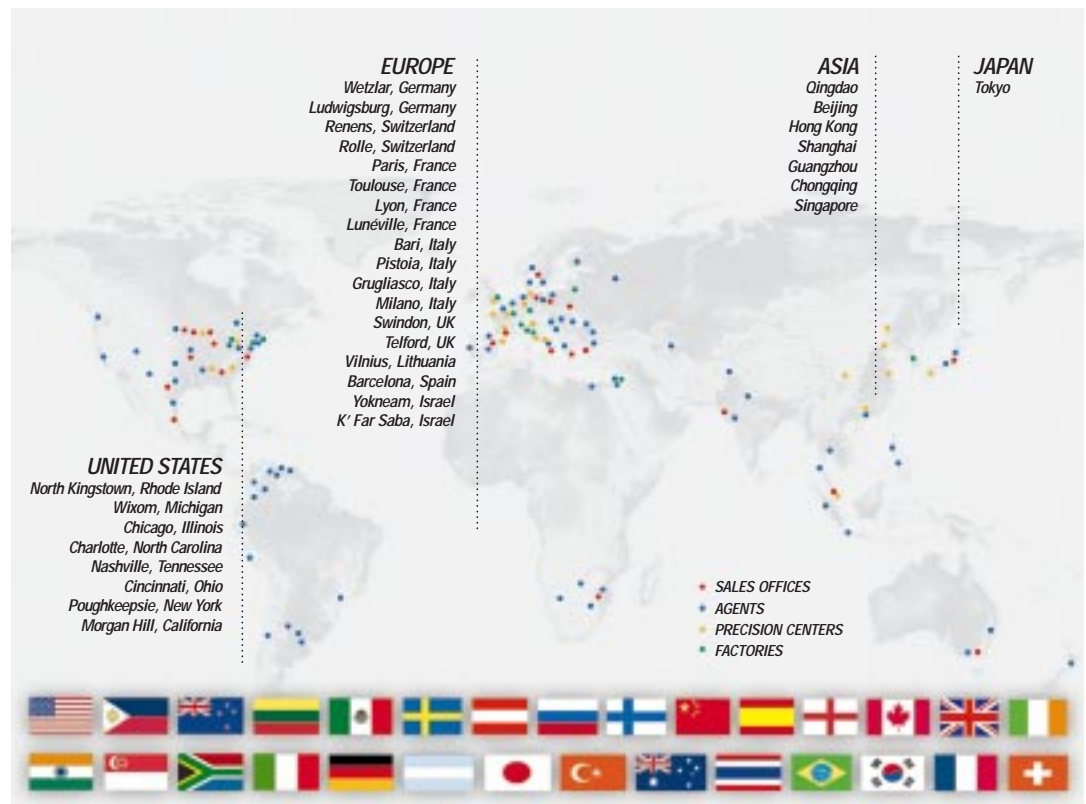
# GAGE 2000 SPECIFICATIONS

Overall Dimensions:	Width	914mm	(36")
	Length	979mm	(39")
	Height	1575mm	(62")
Work Capacity:	X-Axis	559mm	(22")
	Y-Axis	750mm	(29.5")
	Z-Axis	483mm	(19")
Measuring Range:	X-Axis	458mm	(18")
	Y-Axis	510mm	(20")
	Z-Axis	406mm	(16")
Weights:			
Maximum load on table:		227kg	(500 lbs)
Machine weight:		180kg	(395 lbs)
Gross System (shipping weight):		395kg	(870 lbs)
B89 Performance Specifications (American Standard):			
Linear Displacement Accuracy:	X-Axis	5.0µm	(.0002")
	Y-Axis	5.0µm	(.0002")
	Z-Axis	5.0µm	(.0002")
Volumetric Performance:		10µm/325mm	
(Performance/Ball Bar Length):		(.0004"/12.8")	
Repeatability:		4.0µm	(.00016")
VDI/VDE Performance Specs (European Standard):			
	U1	4.0 + 4.0 L/1000µm	
	U3	4.0 + 5.0 L/1000µm	
L = The measured length expressed in mm			
Note: Test procedures, certification options, or additional performance characteristics provided upon request.			
ISO 10360-2 Performance Specs	E (µm)	4.0 + L/200	
	R (µm)	6.2	
JIS Performance Specs (Japanese Standard):			
	U1X	4.0 + 4.0 L/1000 ≤ 5.5µm	
	U1Y	4.0 + 4.0 L/1000 ≤ 5.6µm	
	U1Z	4.0 + 4.0 L/1000 ≤ 5.3µm	
	U3	4.0 + 5.0 L/1000 ≤ 7.2µm	
L = The measured length expressed in mm			
Note: Test procedures, certification options, or additional performance characteristics provided upon request.			
Display Resolution:		0.0001mm	(.000010")
Performance Environment:			
Standard Ambient Temperature:		20°C	(68°F)
Daily Temperature Cycle:		± 1°C	(± 1.8°F)
Superimposed Temperature Cycle:		± 1°C	(± 1.8°F) Min. 4 cycles/hour
Maximum Variation in System Space:		1°C	(1.8°F)
Utility Requirements:			
Air Supply Pressure (Minimum):		5.2 Bar	(75 psi)
Air Consumption:		31.5 L/min.	(1.13 CFM)
		@ 55 psi	
Voltage:		100-250 VAC	-10% +6%
Power Consumption:		30 VA	
Frequency:		47-63 Hz	
Current:		0.65 A Maximum	@ 90 VAC



All CMMs, Metrology Systems and Software manufactured at Brown & Sharpe's three global Measuring Systems' factories and the customer service and support throughout the network of regional Precision Centers are ISO 9001 certified.





**brown & sharpe.**

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 Fax: 86 532 485 6427

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 Tel: (248) 449-9400 Fax: (248) 449-7438  
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 Tel: (704) 525-0182 Fax: (704) 525-3154  
 Cincinnati, OH  
 Tel: (513) 942-0800 Fax: (513) 942-0804  
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 (Aftermarket Services)  
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 (Aftermarket Services)  
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 Telford, United Kingdom  
 Tel: 01952 681300 Fax: 01952 681310  
 Swindon, United Kingdom  
 Tel: 01793 877633 Fax: 01793 877636  
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 Mobile: 139 0846 2504  
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 Singapore  
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*shaping the future of measurement*

Brown & Sharpe Coordinate Measuring Systems include a 12 month warranty for hardware and software supported by a world wide network of authorized service centers. Due to continuing product development, Brown & Sharpe reserves the right to change product specifications and price without notice.  
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